

ABSTRACT

This invention is related to a reactive nanoparticulate cyclodextrin derivative useful as a porogen and a low dielectric matrix, with excellent mechanical properties and uniformly distributed nanopores, manufactured by sol-gel reaction of the above reactive cyclodextrin. Furthemore, this invention also is related to an ultralow dielectric film, with uniformly distributed nanopores, a relatively high porosity of 51%, and a relatively low dielectric constant of 1.6, manufactured by thin-filming of the conventional organic or inorganic silicate precursor by using the above reactive nanoparticulate cyclodextrin derivative as a porogen.